

ABSTRACT OF THE DISCLOSURE

A process for manufacturing a composition of matter from components includes combining the components to produce a blend and combining the blend with a crosslinking system to produce the composition. The components include a polymer base, a silica reinforcing filler, a silica-binding agent, and further product and process additives. Combining the components is carried out in a closed mixer comprising a piston and a pair of rotors. While combining the components, values of at least two indirect parameters and at least two direct parameters are measured at least every two minutes. The at least two indirect parameters comprise blend temperature and power absorbed by the rotors. The at least two direct parameters comprise pressure exerted by the piston and rotations of the rotors. The at least two indirect parameters are maintained within respective ranges of predetermined values by controlling one or more of the at least two direct parameters.

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